UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
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Long Beach, California 90802-4213

APR 18 2000 F/SWR4: MH

Mr. Calvin C. Fong
Chief, Regulatory Branch
U. S. Army Corps of Engineers
San Francisco District
333 Market Street
San Francisco, California 94105

Dear Mr. Fong

This document transmits the National Marine Fisheries Service (NMFS) Biological Opinion based on NMFS' review of the proposed Upper Guadalupe River Flood Control Project located in the City of San Jose, Santa Clara County, California, and its effects on threatened California Coast evolutionarily significant unit (ESU) steelhead (*Oncorhynchus mykiss*) and its critical habitat in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This document also transmits NMFS' tentative essential fish habitat (EFH) Conservation Recommendations for chinook salmon (*Oncorhynchus tshawytscha*) as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) as amended (16 U.S.C. 1801 et seq.). While EFH designations for salmon have yet to be approved by the Secretary of Commerce, we expect them to be forthcoming and provide these recommendations to facilitate your consultation obligations.

The Biological Opinion and tentative EFH Conservation Recommendations are based on information provided in the September 1998, biological assessment, the December 1998, Administrative Final Environmental Impact Statement (Draft #3) and the August 1998, Fish and Wildlife Coordination Act Report, correspondence between NMFS and the Santa Clara Valley Water District (SCVWD), and several conversations between Mark Helvey of NMFS, Robert Smith of the Army Corps of Engineers, and Terry Neudorf, James Ferguson and Dennis Cheong of SCVWD. A complete administrative record of this consultation is on file in the NMFS Santa Rosa office.

Please note that because of the common habitat requirements for steelhead and chinook salmon, NMFS has chosen to include four of five Reasonable and Prudent Measures and their respective Terms and Conditions listed in the Incidental Take Statement prepared for the Central California Coast Steelhead ESU as its tentative EFH Conservation Recommendations for chinook salmon. Once the EFH designations for chinook salmon are approved, the Corps has a statutory requirement under section 305(b)(4)(B) of the MSFCMA to submit a detailed response in writing to NMFS that includes a description of measures proposed for avoiding, mitigating, or offsetting the impact of the activity on EFH, as required by section 305(b)(4)(B) of the MSFCMA and 50 CFR 600.920(j) within 30 days. If unable to complete a final response within 30 days of final approval, the Corps should provide NMFS an interim written response within 30 days. The District should then provide a detailed response.

If you have any questions concerning this biological and conference opinion or EFH recommendations, please contact Mark Helvey at (707) 575-6078.

Sincerely,

Rodney R. McInnis
Acting Regional Administrator

enclosure

Upper Guadalupe River Flood Control Project

BIOLOGICAL OPINION
(Endangered Species Act -Section 7 Consultation)

and

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS
(Magnuson-Stevens Fishery Conservation and Management Act - EFH Consultation)

Endangered Species Act -Section 7 Consultation

BIOLOGICAL OPINION

Agencies: U.S. Army Corps of Engineers.

Activity: Flood Control Project for the Upper Guadalupe River

Consultation Conducted By: National Marine Fisheries Service, Southwest Region.

Date Issued: APR 18 2000.

I. INTRODUCTION

The Guadalupe Flood Control Project is proposed by the Santa Clara Valley Water District (District) to control flooding along the Guadalupe River within the City of San Jose, California. The project will be partially funded by the U. S. Army Corps of Engineers (ACOE) and requires a Section 404 permit. Federally threatened California Coast evolutionarily significant unit (ESU) steelhead (*Oncorhynchus mykiss*) occur in the project area.

The ACOE requested formal Section 7 consultation on this project in a letter dated October 15, 1997 to the National Marine Fisheries Service (NMFS). NMFS did not begin Section 7 consultation at that time because the project was not defined nor was a biological assessment provided. A biological assessment was received by NMFS on September 23, 1998, but many aspects of the project remained unclear. NMFS informally advised the ACOE that there was insufficient information and that a consultation could not be initiated until additional information was forthcoming. An Administrative Final Environmental Impact Report/Environmental Impact Statement, dated December 14, 1998, was subsequently submitted to NMFS and the agency was informed that the project described in the report was the proposed project upon which the biological assessment was based. Further clarification of project impacts were resolved at a July 30, 1999 meeting between NMFS, ACOE and the District. A subsequent letter from the District to NMFS on September 23, 1999 resolved last remaining questions.

This biological and conference opinion is based on the written descriptions of the flood control project (Parson Engineering-Science, 1997; Jones and Stokes Associates, Inc. 1998; Santa Clara Valley Water District and Army Corps of Engineers 1998; U. S. Fish

and Wildlife Service 1998), a field survey by a NMFS biologist of the river reaches to be modified, discussions with project staff and a review of the ecological literature on steelhead.

The Administrative Record for this consultation is maintained at the NMFS Santa Rosa office, 777 Sonoma Ave., Room 325, Santa Rosa, California, 95404.

II. PROPOSED ACTION

The Guadalupe River currently cannot contain the 100-year flood event resulting in repeated flooding of the San Jose community over the years, the most recent event occurring in 1995. To control future flooding, channel modifications are proposed along nine sections or reaches[1] of the river. The Federal action involves cost-sharing and Federal authorization with the District for a flood control project. The District would use the funds to modify two discontinuous segments of the Guadalupe River[2] within the City of San Jose, California for increasing the capacity of the Guadalupe River to contain the 100-year flood event.

The project action includes channel modifications along nine reaches of the river, spanning approximately 6.4 miles. The downstream segment includes Reach A which runs from State Route 101 to Interstate 880 (Figure 1). The upstream segment extends from Interstate 280 to Blossom Hill Road and includes Reaches 6-12. Riparian vegetation borders the project area and undercut banks occur in almost all project reaches (SCVWD and ACOE 1998). A riparian forest corridor lines the river banks and is considered the most extensive and important vegetation community in the project area (SAIC 1998).

Approximately 72% of the 6.4 miles of the river in the project area will be directly affected by project construction. Modifications include bypass channel construction, main channel excavation including the creation of wider channels and bench cuts, bank stabilization, bridge construction, floodwall and levee construction, and revegetation. A bypass channel would be constructed around the natural channel in Reaches 6-8. Channel widening would occur in most of Reaches 9, 10a, 10c, 11a-c and a portion of Reach 12. Portions of the banks in these same reaches would be reinforced with a combination of gabions and cribwall construction. Levees, floodwalls and access ramps would be constructed in Reach A. Bridges at Willow Glen Way and Curtner

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[1] Reaches are convenient subdivisions of the river corresponding to major bridge crossings.

[2] The Guadalupe River drains a 160 mile^2 area in the Santa Cruz Mountains and suburban San Jose, flowing north from the confluence of Alamitos and Guadalupe Creeks through the city of San Jose before emptying into south San Francisco Bay.

Avenue would be replaced, the bridge at Hillsdale Avenue would be removed, and new bridges would be constructed over open portions of the bypass floodway at Willow and West Virginia Streets. Levees in Reach 12 would be raised. Indirect effects (e.g., turbidity, sedimentation) will occur between the two discontinuous segments as well as downstream of the lower segment (i.e., Reach A). A detailed description of the project is provided in Santa Clara Valley Water District and Army Corps of Engineers (1998).

Channel modifications are also proposed for sections of Ross and Canoas Creeks. These creeks are both intermittent tributaries to the Guadalupe River and neither provides spawning nor rearing habitat for salmonids (SAIC 1998). Modifications to these two tributaries include flood wall construction, culvert construction, channel widening. Both creeks are only affected by backwater from the Guadalupe River and access to both creeks is limited by drop structures where they join the river. Only indirect effects ensuing from construction activities in these creeks may be of concern.

Project construction would occur in phases over about a 25 year period. In-channel construction activities will be limited to the summer low-precipitation period (April 15 - October 15), with the condition that construction activities requiring stream dewatering, stream crossing or work in the channel invert not commence until May 1, assuming that stream-monitoring criteria are satisfied. Construction activities associated with grading and excavation of streambanks and bank protection activities will remove 4,886 linear feet (28% of total in Reach 6-12) of overwater riparian vegetation and 1,720 linear feet (15% of the total in Reaches 6-12) of undercut banks.

Conservation measures include establishing 4,886 linear feet of new vegetative cover along affected and unaffected banks to provide a 1:1 ratio that is intended to be sufficiently dense for providing shade

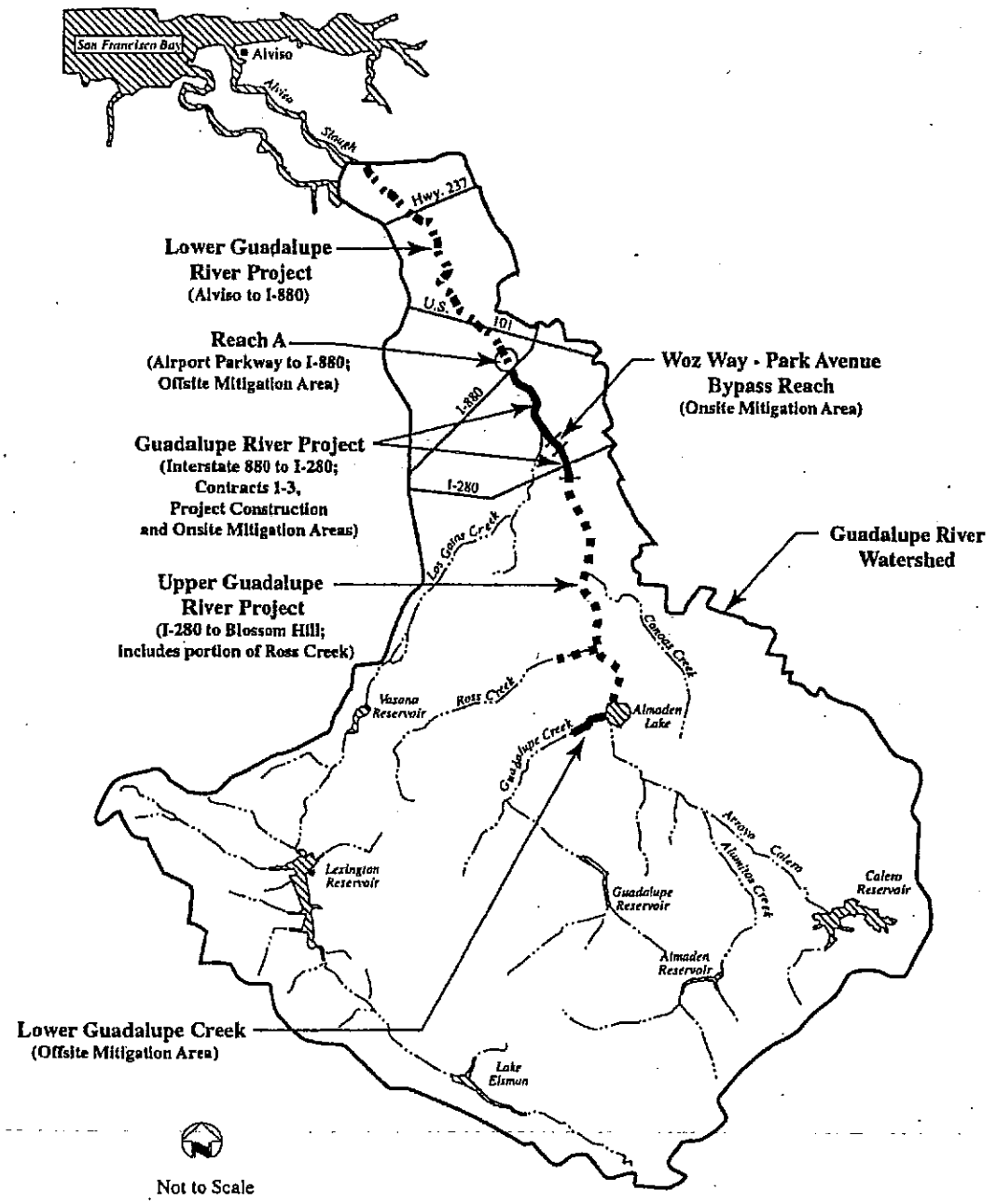

Figure 1. Map of the Guadalupe River watershed. The upper segment of proposed Upper

Guadalupe River Project stretches from Blossom Hill Road (Alamitos drop structure) in the south to Interstate 280 in the north and includes Reaches 6-13. The lower segment includes Reach A and runs downriver from Interstate 880 to State Route 101.

along at least 85% of the bank's length[3]. The 4,886 linear feet of new vegetative cover will be established along the affected banks to offset the loss of undercut banks. Another 600 linear feet of revetment materials will be installed to create additional undercut-bank habitats. In addition to the use of bypass channels for reducing impacts to riparian habitat, the channels will be designed such that ponded-water habitats for entrapping fish are not created. In addition, low-flow channels will be created in the bypass channels to provide fish adequate water depths to return to the Guadalupe River as flows recede. The proposed project also includes the removal of six partial barriers to anadromous fish movements for improving access to steelhead migrating from San Francisco Bay upstream to the Alamitos drop structure above Blossom Hill Road (Jones and Stokes 1998).

III. LISTED SPECIES AND ENVIRONMENTAL BASELINE

Steelhead are likely to be adversely affected by the project action due to riparian habitat impacts including temporary loss of rearing habitat and potential changes in water temperature, sedimentation and turbidity effects, bypass channel entrapment and the interruptions of functional instream habitat. These impacts will occur in two segments: Reach A which extends from State Route 101 to Interstate 880 and Reaches 6-12 which extends from Interstate 280 to Blossom Hill Road. On August 18, 1997, NMFS published a final rule listing the Central California Coast Steelhead ESU as threatened under the ESA (62 FR 43937). Consequently, the status of the species, its life history and habitat requirements, and recent factors affecting its population (i.e., environmental baseline) are described. Critical habitat designation for this ESU was designated on February 16, 2000 (65 FR 7764).

STATUS

Threatened Central California Coast Steelhead ESU: The abundance of steelhead in the Central California Coast ESU was summarized by Busby et al. (1996). The authors commented that steelhead populations within the major streams occupied by this ESU appear to be greatly reduced from historical levels. Steelhead in most tributaries to San Francisco and San Pablo Bays have been virtually extirpated (McEwan and Jackson 1996). In a 1994 to 1997 survey of 30 San Francisco Bay watersheds, steelhead occurred in small numbers at 41 percent of the sites, including the Guadalupe River, San Lorenzo Creek, Corte Madera Creek, and Walnut Creek (Leidy 1997).

[3] Based on a September 23, 1999 letter from Jim Ferguson, Santa Clara Valley Water District, to Mark Helvey, NMFS, the District will plant an additional 8,462 linear feet of shaded riverine aquatic (SRA) cover that will be used as a contingency in the event proposed mitigation plantings fail.

Little information is available regarding the contribution of hatchery fish to natural spawning, and little information on present run sizes or trends for this ESU exists. However, given the substantial rates of declines for stocks where data do exist, the majority of natural production in this ESU is likely not self-sustaining.

Critical Habitat: Central California Coast steelhead critical habitat is designated to include all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River to Soquel Creek, California (inclusive), and the drainages of San Francisco and San Pablo Bays.

LIFE HISTORY AND HABITAT REQUIREMENTS

Threatened Central California Coast Steelhead ESU: The timing of upstream migration is correlated with higher flow events, such as freshets or sand bar breaches, and associated lower water temperatures. Unusual stream temperatures during spawning migration periods can alter or delay migration timing, and increase fish susceptibility to diseases. The minimum stream depth necessary for successful upstream migration is 18 cm (Thompson 1972). Reiser and Bjornn (1979) indicated that steelhead preferred a depth of 24 cm or more.

Steelhead spawn in cool, clear streams featuring suitable gravel size, depth, and current velocity. Intermittent streams may be used for spawning (Barnhart 1986; Everest 1973). Fry typically emerge from the gravel two to three weeks after hatching (Barnhart 1986). After emergence, steelhead fry usually inhabit shallow water along perennial stream banks. Older fry establish territories which they defend. Streamside vegetation and cover are essential for their survival and removal of this vegetation and cover can be considered an adverse impact. Steelhead juveniles are usually associated with the bottom of the stream. In smaller California streams, the water levels may drop so low during the summer that pools are the only viable rearing habitat. No passage between pools can occur until river levels rise with the onset of the rainy season. Therefore, juvenile steelhead rearing in isolated summer pools are extremely vulnerable to disturbance or water quality impacts. Daytime temperatures in summer rearing pools may also be near lethal levels; riparian shading and the presence of sub-surface, cold water seeps are often essential to maintain pool temperatures at tolerable levels. In winter, they become inactive and hide in any available cover, including gravel or woody debris.

The majority of steelhead in their first year of life occupy riffles, although some larger fish inhabit pools or deeper runs. Juvenile steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles. Water temperatures influence the growth rate, population density, swimming ability, ability to capture and metabolize food, and ability to withstand disease of these rearing juveniles. Rearing steelhead juveniles prefer water temperatures of 45° to 58° F and

have an upper lethal limit of 77° F (Raleigh et al. 1984).

During rearing, suspended and deposited fine sediments can directly affect salmonids by abrading and clogging gills, and indirectly cause reduced feeding, avoidance reactions, destruction of food supplies, reduced egg and larval survival, and changed rearing habitat (Reiser and Bjornn 1979).

Juvenile steelhead live in freshwater between one and four years (usually one to two years in the Pacific Southwest) and then become smolts and migrate to the sea from November through May with peaks in March, April, and May. Fish size appears to be positively correlated with water velocity and depth (Chapman and Bjornn 1969, Everest and Chapman 1972).

Further information is available in the NMFS Status Review of west coast steelhead from Washington, Idaho Oregon, and California (Busby et al. 1996), the NMFS Status Review for Klamath Mountains Province Steelhead (Busby et al. 1994), and the NMFS final rule listing the Southern California Coast steelhead ESU, South Central California Coast steelhead ESU, and the Central California Coast steelhead ESU (NMFS 1997).

ENVIRONMENTAL BASELINE

Threatened Central California Coast Steelhead ESU: Documentation of steelhead in the Guadalupe River is scarce. From a historical perspective, Skinner (1962) noted that the Guadalupe River probably supported small runs of steelhead and accounts of their occurrence in the river have been documented (Leidy 1984). Adults would have entered the river from south San Francisco Bay in early winter and migrated upstream into cooler tributaries (e.g., Guadalupe Creek) to spawn. Young steelhead would have remained for at least one year before beginning ocean migrations. Initial logging, followed by numerous barriers, impoundments, diversions, pollution from the canning industry and other urban runoff, gravel mining, and the introduction of non-native fish species (e.g., largemouth bass, sunfishes, carp) greatly reduced the habitat quality of the river over time (U. S. Fish and Wildlife Service 1998). Despite these threats and impacts in this urban setting, steelhead have been able to make a slight comeback and have been recorded in the Guadalupe River at least since 1986 (Ulmer 1988 as reported in USFWS 1998). Three juveniles (not distinguished as rainbow trout or steelhead) were collected in Reach 9 and downstream of the Alamitos drop structure as recently as 1995 (SCVWD and ACOE 1998). Recently, adult steelhead were observed below the Alamitos drop structure immediately upstream of Blossom Hill Road in 1994 and 1995 (SCVWD and ACOE 1998).

Adverse impacts to steelhead in the Guadalupe River system are consistent with the primary reasons for the decline in steelhead abundance throughout California. These declines have resulted from the destruction and modification of habitat, overfishing, and

natural and human-made factors (NMFS 1996, 1997). Based on NMFS' observations, factors adversely affecting steelhead in the project area of the Guadalupe River appear to include alteration or modification of instream habitat, barriers to fish passage, urbanization, and questionable water quality. Modification of instream habitat can reduce the availability of spawning and rearing habitat and also increase water temperatures when shaded riverine aquatic habitat is reduced. Fish passage barriers reduce available habitat for spawning and rearing purposes in upper reaches of the Guadalupe River and its tributaries. Poor water quality can affect steelhead survival and that of their prey.

The presence of adult steelhead suggests their movements occur through San Francisco Bay and into the Guadalupe River possibly to spawn. While adults use the river as a migration corridor, whether they actually use it for spawning purposes cannot be determined because it has not been verified whether the presence of juveniles represent juvenile steelhead or juvenile rainbow trout washed downstream from the Alamitos drop structure[4]. The presence of juvenile steelhead indicates the project area is used for rearing purposes.

IV. EFFECTS OF THE PROJECT ACTION

General: Effects of the proposed project on steelhead are those associated with site preparation, excavation of the channel bed and bank, streamflow diversion, workspace dewatering and installation of bank structures. Effects will involve some temporary loss of riparian habitat. Take is possible in the form of capture, trap, harm, harassment, injury, and mortality of adult and juvenile steelhead trout during and as a result of construction activities (e.g, loss of functional habitat).

The following is a discussion of specific effects of the proposed project on steelhead trout. These effects are categorized into five categories: riparian habitat alteration, sedimentation, turbidity, by-pass channel entrapment and the interruption of functional habitat:

ALTERATION OF RIPARIAN HABITAT

The riparian zone acts as the interface between terrestrial and aquatic ecosystems by moderating the effects of upslope processes and provides important ecological functions (Spence et al. 1996, Flosi et al. 1998). For this project, construction activities associated with grading and excavation of the riverbank and bank protection activities would remove 5,096 linear feet (28 percent of the total in Reaches 6-12) of overwater

[4]This structure was an impassable barrier to steelhead migration until October 1999 when construction of a fish ladder was completed. The operation of this ladder at the confluence of Alamitos and Guadalupe Creeks now provides fish access to another 2.9 miles of upstream habitat along Guadalupe Creek (J. Ferguson, SCVWD, pers. comm.).

riparian vegetation and 1,720 linear feet (15 percent of total in Reaches 6-10A) of. undercut banks. The functional values of riparian corridors and the benefits they provide to stream fish populations is well documented (Karr and Schlosser 1978, Wesche et al. 1987, Gregory et al. 1991, Caselle et al. 1994, Wang et al. 1997). Riparian vegetation provides fish with cover from predators, provides stream bank stability, increases habitat complexity, provides a source of insect prey for juvenile salmonids and provides shade for maintaining suitable water temperatures. The removal of overwater vegetation would reduce existing shade at an average of 5.1 percent for all project reaches. NMFS considers this impact significant because the existing amount of stream shading for all reaches currently averages 20 percent.

The amount of available rearing habitat will also be decreased in the project area as a result of the project action. While mitigation will be implemented to offset these impacts, certain areas in the project area will be permanently devoid of shade and undercut banks. The long-term magnitude and extent of project impacts on rearing habitat will depend in part on the duration and success in reestablishing vegetation and banks along portions of the impacted area. Even though there will be no net loss of habitat as a result of the proposed mitigation, there will be an interim loss of functional rearing habitat during the early stages of construction before mitigation benefits begin to accrue for each reach. However, assuming that construction activities proceed on a protracted construction schedule phased over a 25 year schedule, NMFS estimates that the short-term impacts could be less severe than if construction projects for all reaches were undertaken simultaneously. However, a long-term, chronic effect on the river will occur as a result of the extended construction period and before mitigation activities begin providing functional habitat.

Water temperatures will be affected by the removal of riparian vegetation and shaded riverine aquatic cover (SRA). These impacts will occur until intended mitigation activities associated with plantings of riparian vegetation and SRA cover begin to provide functional habitat (e.g., cover, sources of forage, litter). Although water temperatures may return to present levels after SRA cover has formed adequate canopy cover, NMFS believes the short-term temperature increases may preclude steelhead from fully utilizing cover and rearing opportunities within the project area especially in Reaches 9 and 11B, the east banks of Reaches 10A, 10C, 11A and the west bank of 11C until canopy cover is restored. It is NMFS' understanding that the project will not be constructed all at once, but rather, in phases. Therefore impacts on riparian habitats and anadromous fish habitats would also occur incrementally and locally and not simultaneously throughout the project area (SCVWD and ACOE 1998). As a result, NMFS believes this strategy of phasing the project over 25 years makes the project less disruptive to the habitat requirements of the species. Nevertheless, the temporary loss of riparian habitat could result in harm or mortality to juvenile steelhead by removing cover from predators, reducing nutrient sources and increasing water temperatures.

SEDIMENTATION

Increased sedimentation (rapid settling of suspended sediment) would result mostly from erosion contributed to the Guadalupe River, or resuspended during or resulting from construction activities including excavation and backfilling, installation of streamflow diversion devices, bridge and ramp construction, installation of cofferdams, installation of pipes, culverts and gabions, roadway removal and repaving and vegetation removal and replanting in the Guadalupe River, Ross and Canoas Creeks. The specific sedimentation rate would depend on the duration, volume, and frequency that sediment is contributed to the river. Among other impacts, substantial sedimentation rates could bury less mobile organisms (Cordone and Kelley 1961) that serve as fish forage, and degrade instream habitat conditions (Cordone and Kelley 1961, Eaglin and Hubert 1993). The extent that steelhead are harmed by sedimentation depends partially on the extent that post-construction substrate conditions differ from pre-construction conditions. Although specific sedimentation rates have not been estimated, they are expected to be low to moderate and temporarily occur during the summer construction window. These impacts will occur repeatedly during each construction season. Based on the implementation of proper control measures proposed by the applicant, sedimentation in the project area will likely only be a temporary and minor impact on the habitat of steelhead that may be present.

TURBIDITY

Elevated levels of turbidity (suspended particulate matter) may result when fine sediment is resuspended in the river during excavation and backfilling, installation of streamflow diversion devices, bridge and ramp construction, installation of cofferdams, installation of pipes, culverts and gabions, roadway removal and repaving and vegetation removal and replanting. Turbidity may also arise from activities in Ross and Canoas Creeks. The duration and concentration of the turbidity would depend on the extent of the activities listed above and the efforts taken to eliminate and minimize activities within the streambed. Turbidity may cause indirect harm, injury, or mortality to juvenile steelhead in the vicinity and downstream of the project area. High turbidity concentration can cause fish mortality, reduce fish feeding efficiency and decrease food availability (Berg and Northcote 1985, McLeay et al. 1987, Gregory and Northcote 1993). The effect of any elevated turbidity level on juvenile anadromous fish is difficult to evaluate as the amount of sediment contributed and the resulting turbidity level is speculative. NMFS believes turbidity levels may increase substantially over ambient levels during each construction period over the lifetime of project construction. Based on the implementation of proper control measures proposed by the applicant, turbidity in the project area will likely only be a temporary and minor impact on the habitat of steelhead that may be present.

BYPASS CHANNEL ENTRAPMENT

The proposed project includes the construction of one 8,000 ft bypass channel in Reaches 6-8 and two smaller, 500 ft bypass channels in Reach 9, the Pine Avenue channel and the Malone Road channel. The three new, sediment-lined, channels are intended to bypass excess river flows when the main-channel flows reach flood stages. The Malone Road bypass channel would begin flowing when main channel flow exceeds 700 cfs while the other two would begin flowing at approximately 1500 cfs. The potential exists for steelhead to enter the bypass channels during high flows during upstream migration. Similarly, adult and outmigrating steelhead may be swept downstream into the bypass channels during flood events. In both cases, the different life stages of steelhead trout may experience delays in migration or possibly be stranded during receding flows. The likelihood of fish entrapment during receding flows increases should pool habitats form within the channel bottoms of the respective bypass channels. Even though the Malone Road bypass channel would flow more often than the other two, NMFS believes that this bypass channel as well as the Pine Avenue channel will most likely have minimal effects on fish spawning and migration because of their short length (500 ft.). The proposed design of the 8,000 ft. bypass channel invert will be sloped toward the west bank which will create a low-flow channel. Based on this design, adequate water depths are predicted as flows recede. In addition, the channel will be void of design features that could form ponded water habitats during receding flows. Based on these design specifications, NMFS believes the potential for fish entrapment in the larger channel will be low and should not result in the capture, stranding, injury or death of adult or juvenile steelhead.

INTERRUPTION OF FUNCTIONAL INSTREAM HABITAT

Instream habitat will be temporarily lost when the streamflow is diverted (e.g., coffer dams or culverts) and the workspace is dewatered as a result of project construction. In channel construction such as channel widening, construction of reinforced banks, bridge replacement, and other activities requiring stream dewatering, heavy equipment operation in the channel or stream crossing could harm or kill rearing steelhead because riffle, run, and pool habitats used by these early life history phases could be impacted. Diverting streamflow could harm individual anadromous fish by concentrating or stranding them in residual wetted areas (Cushman 1985) or by causing them to migrate to adjacent habitats (Clothier 1953, Clothier 1954, Kraft 1972, Campbell and Scott 1984). Dewatering the workspace may cause harm, injury, and mortality to anadromous fishes by confining them to areas that are predisposed to dewatering, increased water temperature, decreased dissolved oxygen concentration, and predation (Cushman 1985). Impacts associated with channel construction activities will be confined to the April 15 to October 15 timeframe each year. Streamflow diversion and dewatering, stream crossings, or work in the channel invert will not commence until May 1 provided that stream-monitoring criteria are satisfied. Only

juvenile steelhead rearing in the project areas during the construction period may be harmed, injured or killed as a result of instream construction activities.

The applicant has proposed to remove and relocate the steelhead to suitable areas immediately upstream or downstream of the work space. The number of steelhead trout that may become stranded is difficult to estimate and is only speculative. If strandings do occur, relocation is expected to benefit these fish by allowing them to survive.

REPLACEMENT OF RIPARIAN AND SRA COVER

The applicant proposes to replace and reestablish 4,886 linear feet of Shaded Riverine Aquatic (SRA) cover habitat to mitigate for the same amount of SRA removed during project implementation. In addition, the applicant intends to plant an additional 8,462 linear feet of SRA in the project areas as auxiliary plantings in case any of the proposed mitigation plantings fail. The new vegetative cover would be established by planting native riparian shrubs and trees along existing shaded and unshaded banks affected by the project. Plants intended to provide SRA cover would be established along the water's edge at summer low flows. The applicant would mitigate for the loss of 1,720 linear feet of undercut banks by the addition of the 4,886 linear feet of vegetative cover listed above and the installation of revetment materials to create undercut bank habitats where no plantings are proposed. The action provides net long-term benefits to the Guadalupe River system because the proposed mitigation would potentially increase streamside vegetation coverage and densities, provide additional undercut banks and allow for more continuous shading over the entire project area.

FISH PASSAGE IMPROVEMENTS

Six barriers to fish passage will be removed or modified to improve fish passage. Proposed channel modifications include permanent fixes for an abandoned stream gage at Hillsdale Avenue and a low-flow vehicle crossing downstream of Ross Creek. Removing barriers in the project area will improve access for fish migrating from San Francisco Bay upstream to the Alamitos drop structure. The action will improve passage for steelhead on the Guadalupe River system because existing impediments during certain low flow regimes hamper steelhead movements.

V. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Activities that may occur in the action area include the San Jose Riparian Corridor

Policy Study, Almaden Road Widening, the Guadalupe River Park Project, and the San Jose International Airport Expansion Plan. Population growth in the area could add additional sources of surface water runoff in the project area. The cumulative effects of the anticipated projects may exacerbate water quality conditions, primarily sedimentation and turbidity during river construction.

VI. INTEGRATION AND SYNTHESIS OF EFFECTS

Based on the effects analysis, the most serious impact to steelhead in the project area of the Guadalupe River appears to be the loss of riparian habitat which is acknowledged as take, that is, the loss can result in harm or mortality to steelhead. While the loss of this functional habitat will be permanent in some areas, its removal does not impose an adverse threat to the survival of steelhead in the Guadalupe River system for four reasons. First, the project area constitutes approximately 30 percent of the Guadalupe River. Of this 30 percent or 6.4 miles, only 4.6 miles will be affected by project construction. Secondly, while the project area falls within an urban setting that currently provides marginal steelhead habitat, the use of bypass channels lessens the impacts to existing riparian habitat and these impacts are limited in most cases to just one side of the riverbank rather than both sides. Thirdly, project effects will be incremental and protracted over a 25 year time frame on a local reach by reach basis rather than occurring simultaneously throughout the entire project area. This project schedule results in some minimal and temporary impacts to steelhead during each construction season but avoids the immediate loss of all riparian habitat in the project areas. Lastly, all riparian habitat impacts will be offset by improving the habitat value in other reaches of the watershed that will generate more optimal levels of habitat quality for steelhead. These net benefits to the habitat should assist in the recovery of the population and to the distribution and viability of steelhead in this watershed. Relative to the alteration of riparian habitat, the remaining project effects and cumulative effects are fairly minor in nature and do not impose serious threats to this steelhead population or to the larger ESU.

While some areas of the project area will modify habitat, the replacement of riparian and SRA cover and the removal of fish barriers will maintain and improve the character of habitat such that the project action will not diminish the value of critical habitat.

VII. CONCLUSION

After reviewing the best available scientific and commercial data, current status of steelhead, the environmental baseline for the action area, the effects of the flood control project, and the cumulative effects, it is NMFS' biological opinion that the project action, as proposed, is not likely to jeopardize the continued existence of the federally threatened Central California Coast ESU steelhead or result in the destruction or

adverse modification of its critical habitat.

VIII. INCIDENTAL TAKE STATEMENT

Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7 (b) (4) and 7 (o)(2), taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with this Incidental Take Statement.

Section 7 (b)(4) of the ESA provides for the issuance of an incidental take statement for the agency action if the biological opinion concludes that the proposed action is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. In such a situation, NMFS will issue an incidental take statement specifying the impact of any incidental taking of endangered or threatened species, providing Reasonable and Prudent Measures that are necessary to minimize impacts, and setting forth the Terms and Conditions with which the action agency must comply in order to implement the Reasonable and Prudent Measures. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the Terms and Conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by USACE so that they become binding conditions of any grant or permit issued to the SCVWD, as appropriate, for the exemption in section 7(o)(2) to apply. The USACE has a continuing duty to regulate the activity covered by this Incidental Take Statement. If USACE (1) fails to assume and implement the Terms and Conditions or (2) fails to require the SCVWD to adhere to the Terms and Conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USACE must report the progress of the action and its impact on the species to NMFS as specified in the Incidental Take Statement (50 CFR §402.14(I)(3)).

Amount or extent of take anticipated

The NMFS anticipates incidental take of steelhead will be difficult to detect for the following reasons: the inherent biological characteristics of aquatic species such as steelhead, the dimensions and variability of the Guadalupe River system, and the operational complexities of the phased flood control construction activities. However, the level of take of this species can be anticipated by the temporary loss of an estimated 4,886 linear feet of overwater riparian vegetation and 1,720 linear feet of undercut banks[5] because these losses adversely affect streambank rearing and foraging habitat for steelhead and may result in reduced survival. In addition, some fish may be stranded during construction (and relocated). NMFS has assumed that this will be a rare event that will affect a few fish, probably less than ten fish per construction season. If stranded fish are relocated, it is likely that most will survive (their relocation thereby minimizing impacts to the population). NMFS also assumes that the proposed mitigation will be fully implemented and remain successful over the life of the project and that the proposed 25 year construction schedule is followed. Take will be exceeded if either of these assumptions prove incorrect. Take is not expected to occur from bypass channel operations.

Effect of the take

In the accompanying biological opinion/conference opinion, NMFS determined that this level of anticipated take is not likely to result in jeopardy to the Central California Coast Steelhead ESU when the following reasonable and prudent alternatives are implemented.

Reasonable and Prudent Measures

The NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of threatened Central California Coast Steelhead caused by activities related to the Upper Guadalupe River Flood Control Project:

1. Avoid and minimize instream construction impacts to the Guadalupe River ecosystem.

2. Minimize the extent of temporary and permanent changes to instream and riparian habitat and ensure that proposed mitigation measures used to replace losses of riparian vegetation including SRA cover and undercut banks are fully successful.

3. Use a fisheries biologist for the purposes of monitoring the affected area, and for

[5]Losses for SRA cover and undercut banks will be fully mitigated.

removing and relocating steelhead from the affected area.

4. Implement adequate control measures to avoid or minimize sediment, turbidity and pollutant inputs to the Guadalupe River.

5. Prepare and submit monitoring reports annually to document status of construction and mitigation activities.

Terms and Conditions

The ACOE is responsible for the following Terms and Conditions that implement the reasonable and prudent measures described above. These Terms and Conditions are intended to minimize incidental take of steelhead associated with The Upper Guadalupe River Flood Control Project.

1. The following Terms and Conditions implement Reasonable and Prudent Measure No. 1.

A. The ACOE and District shall isolate each workspace from flowing water for the purpose of avoiding heavy equipment in flowing water, sedimentation, turbidity, and direct effects to steelhead. Prior to construction activities, diversion materials shall be installed (e.g., sandbag cofferdams, straw bales to divert streamflow away or around each workspace. The diversion shall remain in place during the project, then removed immediately after work is completed.

B. The ACOE and District shall ensure and maintain a corridor for unimpeded passage of steelhead during the project action.

C. When practical, the ACOE and District shall use existing points of ingress or egress, or perform work from the top of the river bank, for the purposes of avoiding work and heavy equipment in flowing water, and disturbing riverbank, vegetation, and instream habitat.

D. The ACOE and District shall confine in-channel construction activities to the summer low-precipitation period (April 15 - October 15), with the condition that construction requiring stream dewatering, stream crossing or work in the channel invert not commence until May 1 assuming that two stream-monitoring criteria are met. The first is that a qualified fisheries biologist (see Term and Condition No. 3) survey the project area and verify the absence of juvenile steelhead for a minimum of three consecutive sampling days. The second is that average daily water temperatures exceed 64^0 F for a minimum of three consecutive days.

Should stream-monitoring criteria not be met, channel invert work and stream dewatering will not be allowed until June 1.

E. All aquatic macrofauna shall be removed from the work site by a qualified fishery biologist (see Term and Condition No. 3) and placed downstream.

F. Take appropriate measures to ensure that activities in Ross and Canoas Creeks do not lead to increased sources of sedimentation or turbidity to the Guadalupe River.

G. A worker education program shall be undertaken on the importance of protecting steelhead and their proposed critical habitat.

2. The following Terms and Conditions implement Reasonable and Prudent Measure No. 2.

A. The ACOE or District shall photograph the project area prior to and after each construction season for the purpose of developing a reference library of instream and riparian habitat characteristics.

B. The ACOE and District shall ensure that losses of riparian vegetation are fully mitigated and ensure a revegetation success ratio of no less than 1:1 on the Guadalupe River. Losses for SRA cover shall be fully mitigated and ensure a revegetation success ratio such that there is no net loss of SRA. Based on a September 23, 1999 letter from Jim Ferguson, Santa Clara Valley Water District, to Mark Helvey, the District will plant an additional 8,462 linear feet of SRA in adjacent areas that will be used as a contingency in case of failure of any of the proposed mitigation plantings.

C. The ACOE and District shall prepare a Mitigation and Monitoring Plan to address the replacement and reestablishment of riparian vegetation (including SRA cover) and undercut banks. The plan shall be submitted to NMFS for review and approval before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to ACOE and District that plan modifications are necessary for acceptance.

D. The ACOE and District shall implement a Vegetation Protection Plan to prevent the inadvertent loss of riparian vegetation above and beyond that necessarily resulting from project construction activities. The plan will also describe maintenance procedures to protect and enhance the riparian system. The plan shall be submitted to NMFS for review and approval

before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to ACOE and District that plan modifications are necessary for acceptance.

E. All mitigation areas that have been set aside as compensation for project impacts resulting from this project or any other project (e.g., "Downtown Flood Control Project") will not be disturbed or impacted during construction activities (e.g., Reach A) and will be preserved in perpetuity.

F. The proposed project schedule (Table B-4, Jones and Stokes, 1998) for actual scheduled construction for each reach as well as Canoas and Ross Creeks is adhered to and followed. Any changes to this schedule that would result in the loss of stream habitat at a faster rate than proposed will result in reinitiation of formal consultation.

3. The following Terms and Conditions implement Reasonable and Prudent Measure No. 3.

A. The ACOE and District shall retain a fisheries biologist with expertise in the areas of resident or anadromous salmonid biology and ecology, fish/habitat relationships, and biological monitoring; and, handling, collecting, and relocating salmonid species. The biologist will monitor activities prior to and during inchannel activities especially related to temporary blockage or redirection of the flow of water through the use of coffer dams or culverts.

B. The biologist shall monitor placement and removal of the channel diversions for the purpose of removing any steelhead that would be adversely affected. The biologist shall capture such steelhead and individuals stranded in residual wetted areas as a result of streamflow diversion and workspace dewatering, and relocate the individuals to a suitable instream location immediately upstream or downstream of the particular project area. One or more of the following NMFS approved methods shall be used to capture steelhead: dip net, seine, throw net, minnow trap, and, hand. Electrofishing may only be used if NMFS has reviewed the biologist's qualifications and given approval. The biologist shall note the number of individuals observed in the affected area, the number of individuals relocated, and the date and time of the collection and relocation.

C. The biologist shall monitor inchannel activities, instream habitat, and performance of sediment control/detention devices (see Term and Condition No. 4) for the purpose of identifying and reconciling any

condition that could adversely affect steelhead or their habitat. The ACOE and District and their contractors, upon notification from the biologist, shall halt the work activity causing the condition affecting steelhead and recommend measures for avoiding the condition. Work can resume when NMFS agrees that the proposed measures are appropriate for avoiding the condition.

D. The biologist shall contact NMFS (707-575-6050) immediately if one or more steelhead are found dead or injured as a result of project activities. The purpose of the contact shall be to review the activities resulting in take and to determine if additional protective measures are required.

4. The following Terms and Conditions implement Reasonable and Prudent Measure No. 4.

A. Erosion control and sediment detention devices shall be incorporated into the project and implemented at the time of the project action. These devices shall be in place during the project action, and after if necessary, for the purpose of minimizing fine sediment and sediment/water slurry input to flowing water. The devices shall be placed at all locations where the likelihood of sediment input exists.

B. At the time of the project action, the ACOE and District shall prepare and implement a Storm Water Pollution Prevention Plan as part of the National Pollutant Discharge Elimination System (NPDES) General Construction Activity Storm Water Permit to avoid or minimize increased sediment and turbidity impacts. These plans will be reviewed and approved by NMFS.

C. At the time of the project action, the ACOE and District shall prepare and implement a Toxic Material Control and Spill Response Plan to avoid or minimize increased pollutant inputs. These plans will be reviewed and approved by NMFS.

D. All water within the construction site shall be pumped off-site or into a settling basin or tank and not directly into the downstream channel.

E. All pilings, support piers, abutments and rock materials shall be non-toxic. Any combination of wood, plastic, concrete, or steel is acceptable, provided that there are no toxic coatings, chemical antifouling products, or other treatments that may leach into the surrounding environment.

5. The following Terms and Conditions implement Reasonable and Prudent Measure No. 5.

A. The ACOE and District shall provide a written monitoring report to NMFS within 30 working days following completion of each construction season (no later than November 30). The report shall include the number of steelhead killed or injured during the project action and biological monitoring; the number and size of steelhead; any effect of the project action on steelhead that was not previously considered (reinitiation of consultation would be required, see section IX, item 2 of the Biological Opinion); photographs documenting compliance with Reasonable and Prudent Measures No. 1 and 4; and, photographs taken before and after work activity.

B. The ACOE and District shall provide a written report describing results of their mitigation activities to NMFS on a schedule that is developed in the Mitigation and Monitoring Plan. At the very minimum, the report shall include a description of the locations planted or seeded, the area (ft^2) revegetated, a plant palette, planting or seeding methods, performance or success criteria, and pre- and post-planting color photographs of the revegetated area.

C. The ACOE and District shall provide a written report describing results of their Vegetation Protection Plan to NMFS on a schedule that is developed during the adoption of the plan.

D. All reports, proposed plans, and annual updates shall be submitted to: Protected Resources Division Supervisor, NMFS, 777 Sonoma Ave., Room 325, (707) 575-6050, Fax (707) 578-3435.

IX. REINITIATION OF CONSULTATION

Reinitiation of formal consultation is required if there is discretionary Federal involvement or control over the action and if (1) the amount or extent of taking specified in any incidental take statement is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the action is subsequently modified in a manner that causes an effect to the listed species that was not considered in the biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

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Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA)

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS[6]

The Pacific Fisheries Management Council has recommended an EFH identification for the Pacific salmon fishery which has yet to be approved by the Secretary of Commerce. However, if approval occurs before the Corps has finalized this project, they will need to provide a detailed response in writing describing the measures proposed by the Corps for avoiding, mitigating, or offsetting the impacts of the project on EFH.

I. IDENTIFICATION OF ESSENTIAL FISH HABITAT

The geographic extent of freshwater essential fish habitat (EFH) for the Pacific salmon fishery is proposed as waters currently or historically accessible to salmon within specific U. S Geological Survey hydrologic units (PFMC 1999). For San Francisco Bay, the aquatic areas that may be identified as EFH for salmon are within hydrologic unit maps numbered 1805003 and 1805004 (titled Coyote and San Francisco Bay, respectively) that includes Santa Clara County through which the Guadalupe River flows.

Chinook salmon (*Oncorhynchus tshawytscha*) occur in the Guadalupe River drainage and may be part of the California Central Valley fall/late-fall run ESU[7]. Adults have been documented on the Guadalupe River at least since 1986 (Ulmer 1988 as reported in USFWS 1998). Adults are known to migrate up the Guadalupe River and have been reported as far upstream at the Alamitos drop structure immediately upstream of Blossom Hill Road (SCVWD and ACOE 1998). Within the project area, chinook were observed spawning in November of 1986 and 1987 in Reach 9 (SCVWD and ACOE 1998). During stream surveys in 1987, 28-31 redds were found at 13 potential spawning sites from Canoas Creek to I-280 with the greatest concentration (12-13 each) observed in Reaches 7A and 9A. The number of redds appears to be increasing

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[6]The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) set forth new mandates for the National Marine Fisheries Service (NMFS) and federal action agencies to protect important marine and anadromous fish habitat. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to NMFS "EFH Conservation Recommendations."

[7]Recent changes to the listing of chinook salmon under the Endangered Species Act for the Guadalupe River are noted in the Federal Register (Vol. 64, No. 179, September 16, 1999). NMFS has found the ESU occurring in the Guadalupe River does not warrant a threatened status as originally proposed. NMFS will protect and enhance the habitat of these chinook salmon through the "essential fish habitat" provisions of the Magnuson-Stevens Act.

as 57 were counted in the river in the 1995-96 season (SCVWD and ACOE 1998). Juvenile chinook have also been documented in Reach 11 (SCVWD and ACOE 1998). Based on the observations of redds and juvenile chinook salmon in the project area, NMFS also believes that the areas affected by the project action may provide essential fish habitat (EFH) habitat for spawning and rearing chinook salmon.

LIFE HISTORY AND HABITAT REQUIREMENTS

General life history information for chinook salmon is summarized below. Further detailed information on chinook salmon ESUs are available in the NMFS status review of chinook salmon from Washington, Idaho, Oregon, and California (Myers et al. 1998), and the NMFS proposed rule for listing several ESUs of chinook salmon (NMFS 1998).

Chinook salmon spawning generally occurs in swift, relatively shallow riffles or along the edges of fast runs at depths greater than 6 inches, usually 1-3 feet to 10-15 feet. Preferred spawning substrate is clean loose gravel and gravels are unsuitable when they have been cemented with clay or fines or when sediments settle out onto redds reducing intergravel percolation (NMFS 1997).

At the time of emergence from their gravel nests, most fry disperse downstream towards the estuary, hiding in the gravel or stationing in calm, shallow waters with fine sediments substrate and bank cover such as tree roots, logs, and submerged or overhead vegetation. As they grow, the juveniles associate with coarser substrates along the stream margin or farther from shore (Healey 1991). Along the emigration route, submerged and overhead cover in the form of rocks, submerged aquatic vegetation, logs, riparian vegetation, and undercut banks provide food, shade and protect juveniles from predation. Chinook salmon in the Southern Oregon and California Coastal ESU exhibit an ocean-type life history, that is, they typically migrate to seawater in their first year of life (NMFS 1998). However, when environmental conditions are not conducive to subyearling emigration, ocean-type chinook salmon may remain in freshwater for their entire first year (NMFS 1998).

Principal foods of chinook while rearing in freshwater and estuarine environments are larval and adult insects and zooplankton such as *Daphnia*, flys, gnats, mosquitoes or copepods (Kjelson et al. 1982), stonefly nymphs or beetle larvae (Chapman and Quistdorff 1938) as well as other estuarine and freshwater invertebrates.

II. PROPOSED ACTION.

The proposed action is described in Part II of the preceding Biological Opinion for the threatened Cental California Coast Steelhead ESU.

III. EFFECTS OF THE PROJECT ACTION

Due to the common habitat requirements of steelhead and chinook salmon including migration corridors, water quality conditions, thermal preferences, rearing and spawning habitat requirements, the direct, indirect and cumulative adverse effects of the proposed project actions predicted for steelhead will also adversely effect the potential EFH for chinook salmon. Adverse effects to EFH will result from activities associated with site preparation, excavation of the channel bed and bank, streamflow diversion, workspace dewatering and installation of bank structures. These project activities will result in temporary loss of riparian habitat resulting in temporary and permanent loss of rearing and spawning habitat, temporary changes in water temperature, possible sedimentation and turbidity events, and interruptions in ecosystem functions in the instream habitat. These effects are discussed in greater detail in the preceding Biological Opinion.

IV. CONCLUSION

Upon review of the effects of the flood control project, NMFS believes that the project action, as proposed, will adversely affect the potential EFH of chinook salmon in the project area of the Guadalupe River.

V. EFH CONSERVATION RECOMMENDATIONS

NMFS recommends that Reasonable and Prudent Measures Nos. 1, 2, 4 and 5 and their respective Terms and Conditions listed in the Incidental Take Statement prepared for the Central California Coast Steelhead ESU in the preceding Biological Opinion be adopted. Reasonable and Prudent Measures Nos. 1, 2, 4 and 5 and their respective Terms and Conditions are repeated below as advisory recommendations:

Reasonable and Prudent Measures

1. Avoid and minimize instream construction impacts to the Guadalupe River ecosystem.

2. Minimize the extent of temporary and permanent changes to instream and riparian habitat and ensure that proposed mitigation measures used to replace losses of riparian vegetation including SRA cover and undercut banks are fully successful.

3. (Not included)

4. Implement adequate control measures to avoid or minimize sediment, turbidity and pollutant inputs to the Guadalupe River.

5. Prepare and submit monitoring reports annually to document status of construction and mitigation activities.

Terms and Conditions

The ACOE is responsible for the following Terms and Conditions that implement the Reasonable and Prudent Measures described above.

1. The following Terms and Conditions implement Reasonable and Prudent Measure No. 1.

A. The ACOE and District should isolate each workspace from flowing water for the purpose of avoiding heavy equipment in flowing water, sedimentation, turbidity, and direct effects to steelhead. Prior to construction activities, diversion materials should be installed (e.g., sandbag cofferdams, straw bales to divert streamflow away or around each workspace. The diversion should remain in place during the project, then removed immediately after work is completed.

B. The ACOE and District should ensure and maintain a corridor for unimpeded passage of steelhead during the project action.

C. When practical, the ACOE and District should use existing points of ingress or egress, or perform work from the top of the river bank, for the purposes of avoiding work and heavy equipment in flowing water, and disturbing riverbank, vegetation, and instream habitat.

D. The ACOE and District should confine in-channel construction activities to the summer low-precipitation period (April 15 - October 15), with the condition that construction requiring stream dewatering, stream crossing or work in the channel invert not commence until May 1 assuming that two stream-monitoring criteria are met. The first is that a qualified fisheries biologist (see Term and Condition No. 3) survey the project area and verify the absence of chinook salmon for a minimum of three consecutive sampling days. The second is that average daily water temperatures exceed 64^0 F for a minimum of three consecutive days. Should stream-monitoring criteria not be met, channel invert work and stream dewatering should not be allowed until June 1.

E. All aquatic macrofauna should be removed from the work site by a qualified fishery biologist (see Term and Condition No. 3) and placed downstream.

F. Take appropriate measures to ensure that activities in Ross and Canoas Creeks do not lead to increased sources of sedimentation or turbidity to the Guadalupe River.

G. A worker education program should be undertaken on the importance of protecting steelhead trout and their proposed critical habitat.

2. The following Terms and Conditions implement Reasonable and Prudent Measure No. 2.

A. The ACOE or District should photograph the project area prior to and after each construction season for the purpose of developing a reference library of instream and riparian habitat characteristics.

B. The ACOE and District should ensure that losses of riparian vegetation are fully mitigated and should ensure a revegetation success ratio of no less than 1:1 on the Guadalupe River. Losses for SRA cover should be fully mitigated and should ensure a revegetation success ratio such that there is no net loss of SRA. Based on a September 23, 1999 letter from Jim Ferguson, Santa Clara Valley Water District, to Mark Helvey, the District will plant an additional 8,462 linear feet of SRA in adjacent areas that will be used as a contingency in case of failure of any of the proposed mitigation plantings.

C. The ACOE and District should prepare a Mitigation and Monitoring Plan to address the replacement and reestablishment of riparian vegetation (including SRA cover) and undercut banks. The plan should be submitted to NMFS for review and approval before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to ACOE and District that plan modifications are necessary for acceptance.

D. The ACOE and District should implement a Vegetation Protection Plan to prevent the inadvertent loss of riparian vegetation above and beyond that necessarily resulting from project construction activities. The plan should also describe maintenance procedures to protect and enhance the riparian system. The plan should be submitted to NMFS for review and approval before initiating construction. NMFS shall provide in writing either concurrence with the plan or notification to ACOE and District that plan modifications are necessary for acceptance.

E. All mitigation areas that have been set aside as compensation for project

impacts resulting from this project or any other project (e.g., "Downtown Flood Control Project") should not be disturbed or impacted during construction activities (e.g., Reach A) and should be preserved in perpetuity.

F. The proposed project schedule (Table B-4, Jones and Stokes, 1998) for actual scheduled construction for each reach as well as Canoas and Ross Creeks should be adhered to and followed. Any changes to this schedule that would result in the loss of stream habitat at a faster rate than proposed will result in reinitiation of consultation.

3. (Not included)

4. The following Terms and Conditions implement Reasonable and Prudent Measure No. 4.

A. Erosion control and sediment detention devices should be incorporated into the project and implemented at the time of the project action. These devices should be in place during the project action, and after if necessary, for the purpose of minimizing fine sediment and sediment/water slurry input to flowing water. The devices should be placed at all locations where the likelihood of sediment input exists.

B. At the time of the project action, the ACOE and District should prepare and implement a Storm Water Pollution Prevention Plan as part of the National Pollutant Discharge Elimination System (NPDES) General Construction Activity Storm Water Permit to avoid or minimize increased sediment and turbidity impacts. These plans should be reviewed and approved by NMFS.

C. At the time of the project action, the ACOE and District should prepare and implement a Toxic Material Control and Spill Response Plan to avoid or minimize increased pollutant inputs. These plans should be reviewed and approved by NMFS.

D. All water within the construction site should be pumped off-site or into a settling basin or tank and not directly into the downstream channel.

E. All pilings, support piers, abutments and rock materials should be non-toxic. Any combination of wood, plastic, concrete, or steel is acceptable, provided that there are no toxic coatings, chemical antifouling products, or other treatments that may leach into the surrounding environment.

5. The following Terms and Conditions implement Reasonable and Prudent Measure No. 5.

A. The ACOE and District should provide a written monitoring report to NMFS within 30 working days following completion of each construction season (no later than November 30). The report should include the number and size of chinook salmon killed or injured during the project action and biological monitoring; any effect of the project action on chinook salmon habitat that was not previously considered; photographs documenting compliance with Reasonable and Prudent Measures No. 1 and 4; and, photographs taken before and after work activity.

B. The ACOE and District should provide a written report describing results of their mitigation activities to NMFS on a schedule that is developed in the Mitigation and Monitoring Plan. At the very minimum, the report should include a description of the locations planted or seeded, the area (ft^2) revegetated, a plant palette, planting or seeding methods, performance or success criteria, and pre- and post-planting color photographs of the revegetated area.

C. The ACOE and District should provide a written report describing results of their Vegetation Protection Plan to NMFS on a schedule that is developed during the adoption of the plan.

D. All reports, proposed plans, and annual updates should be submitted to: Protected Resources Division Supervisor, NMFS, 777 Sonoma Ave., Room 325, (707) 575-6050, Fax (707) 578-3435.

Should these EFH conservation recommendations be implemented, significant improvements to the potential EFH of chinook salmon in the Guadalupe River are expected, and adverse impacts to their potential EFH would be mitigated.

VI. CORPS STATUTORY REQUIREMENTS

The Magnuson-Stevens Act and Federal regulations (50 CFR Sections 600.920) to implement the EFH provisions of the MSFCMA require federal action agencies to provide a written response to EFH Conservation Recommendations within 30 days of its receipt. Because the EFH designations for Pacific salmon have yet to be approved, this regulation does not apply until approved by the Secretary of Commerce at which time the 30 day period will commence. A preliminary response is acceptable if final action cannot be completed within 30 days. Your final response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of

the activity. If your response is inconsistent with our EFH Conservation Recommendations, you must provide an explanation of the reasons for not implementing them.

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